

# Three New Instruments for Cataract and Refractive Surgery

## Better chopping and hydrodissection.

BY RICHARD J. MACKOOL, MD

In conjunction with Crestpoint Management Ltd., I have designed two instruments that facilitate nuclear chopping and hydrodissection.



### CHOPPING

I designed the Mackool Big Ball Chopper I several years ago. The large, round, smooth ball at the distal end of the angulated instrument offers two advantages over other choppers: greater posterior capsular safety and improved nuclear chopping.

The instrument's profile is extremely "capsule friendly" (Figure 1), so much so, in fact, that I routinely use the chopper to protect the posterior capsule during phaco procedures. Specifically, I place the instrument posterior to the last two or three nuclear segments as they are emulsified. Although it often contacts the posterior capsule during this time, the instrument causes no harm.

The relatively large ball results in a correspondingly increased area of contact with the nucleus. I find this facilitates chopping, especially of nuclei that are either relatively soft or very firm.

The Mackool Big Ball Chopper II allows even more efficient chopping simply by virtue of the larger ball profile (Figure 1). Its greater size reduces the potential for the instrument to penetrate a soft nucleus without creating a force sufficient to divide it. The same mechanism also increases the likelihood of successfully chopping a dense nucleus.

### HYDRODISSECTION

The Mackool Hydrodissection Cannula features a 23-gauge, flattened design (Sterimedix Ltd.; Figure 2).

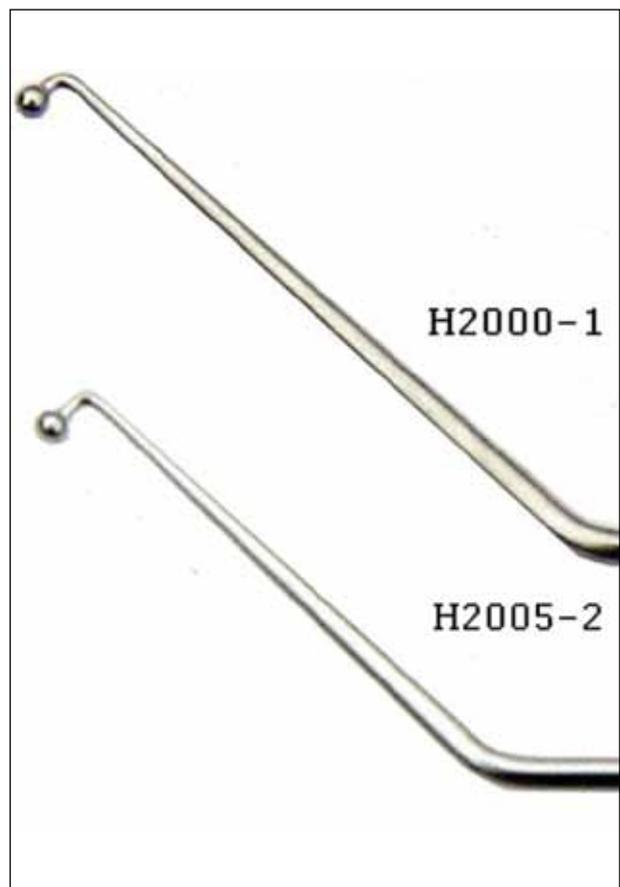


Figure 1. Comparison of the Mackool Big Ball Chopper I (top) and II (bottom).

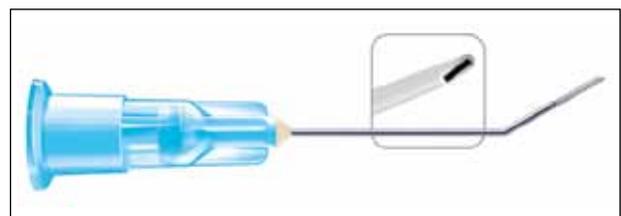


Figure 2. The Mackool Hydrodissection Cannula.

This quality promotes efficient hydrodissection, because a very wide fluid wave is created by slight depression of the syringe's plunger. This increases safety simply because a wide path of hydrodissection is achieved with reduced hydraulic pressure. Localized areas of greatly elevated intracapsular pressure are thus avoided, which otherwise could increase the risk of posterior capsular rupture.

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## A New Toric Access Marker

**BY R. J. MACKOOL, MD**

In conjunction with Crestpoint Management Ltd., I designed the RJ Toric Axis Marker to facilitate marking of the corneal axis for both cataract-IOL and refractive procedures.

### EASY-TO-SET INSTRUMENT AXIS

The nonglare, titanium dial and corresponding footplate markers can be simultaneously rotated to the desired axis in several seconds. The dial (Figure A) can be simultaneously observed, grasped, and rotated. With other toric axis marker designs, the instrument must be inverted, the footplates rotated, and the instrument returned to the upright position for the surgeon to view the dial, and then the process must be repeated.

*“The nonglare, titanium dial and corresponding footplate markers can be simultaneously rotated to the desired axis in several seconds.”*

### EPITHELIUM FRIENDLY

The round titanium marking blades (Figure B) are designed to prevent epithelial damage and abrasion. The lightest touch of the instrument to the cornea immedi-

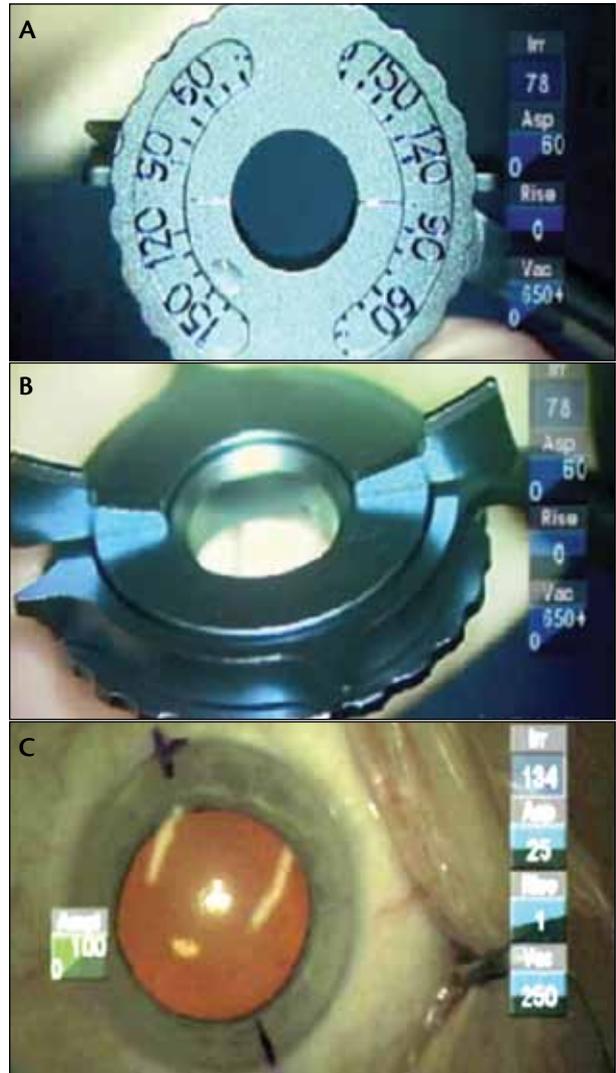


Figure. The dial of the RJ Toric Axis Marker (A). Round titanium marking blades (B). Corneal marking by the instrument (C).

ately and atraumatically creates thin, radial marks at the limbus that are 180° apart.

### EFFICIENT MARKING

Because titanium retains ink much better than stainless steel, very gentle contact of the instrument to the cornea creates a clearly visible mark (Figure C). ■



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